THE DESIGN CRITERIA FOR WASTEWATER SYSTEMS (30 TAC Chapter 217)

TCEQ 2014 Water Quality/Stormwater Seminar

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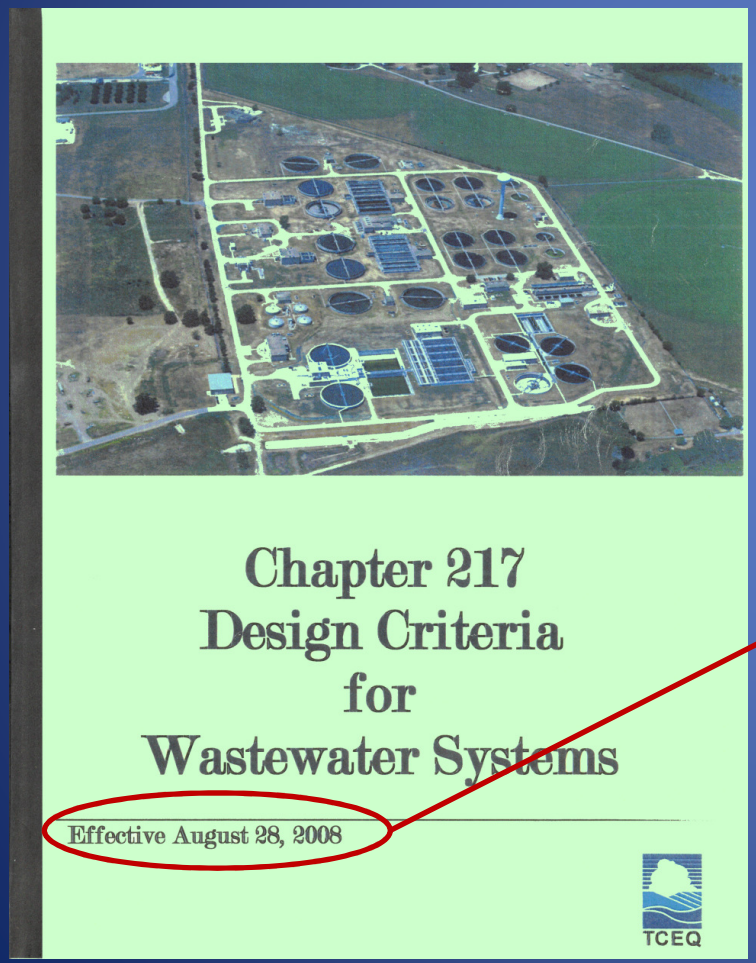
OVERVIEW

- Current Chapter 217
- History
- What Initiated the Proposed Rule
- Proposed Rule Schedule
- Proposed Changes

CURRENT CHAPTER 217

Subchapter A	• Administrative Requirements
Subchapter B	• Treatment Facility Design Requirements
Subchapter C	• Conventional Collection Systems
Subchapter D	• Alternative Collection Systems
Subchapter E	• Preliminary Treatment Units
Subchapter F	• Activated Sludge Systems
Subchapter G	• Fixed Film and Filtration Units
Subchapter H	• Natural Treatment Facilities
Subchapter J	• Sludge Treatment Units
Subchapter K	• Chemical Disinfection
Subchapter L	• UV Light Disinfection
Subchapter M	• Safety

CURRENT CHAPTER 217



§217.1 Applicability
This chapter applies to any person who proposes to construct, renovate, or re-rate a wastewater collection system or commission permitted wastewater treatment facility…

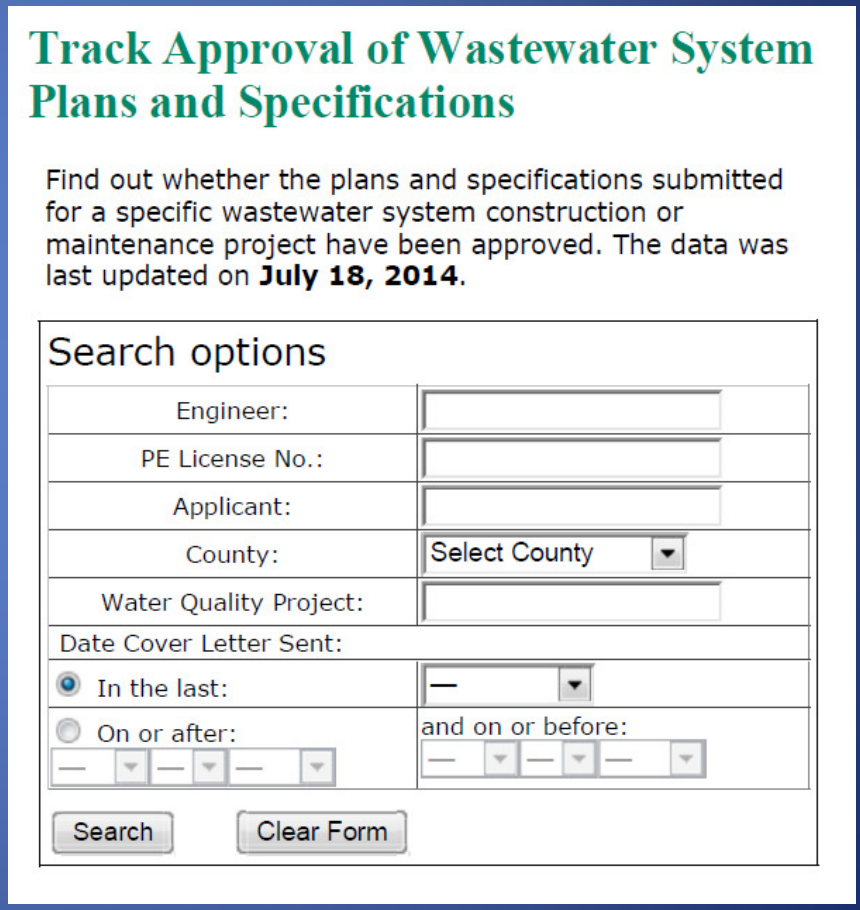
Effective August 28, 2008

CURRENT CHAPTER 217

- §217.3 Purpose
- §217.4 Variances
  - Prohibitions (do not request a variance)
- §217.6 Submittal Requirements and Review Process
  - Example “Summary Transmittal Letter” on the web
  - Include the WWTF permit number

CURRENT CHAPTER 217

- Check the status of your summary transmittal letter.
  http://www4.tceq.texas.gov/wwdp/



Track Approval of Wastewater System Plans and Specifications

Find out whether the plans and specifications submitted for a specific wastewater system construction or maintenance project have been approved. The data was last updated on **July 18, 2014**.

Search options

Engineer:	
PE License No.:	
Applicant:	
County:	Select County
Water Quality Project:	
Date Cover Letter Sent:	
In the last:	—
On or after: — — —	and on or before: — — —

Search Clear Form

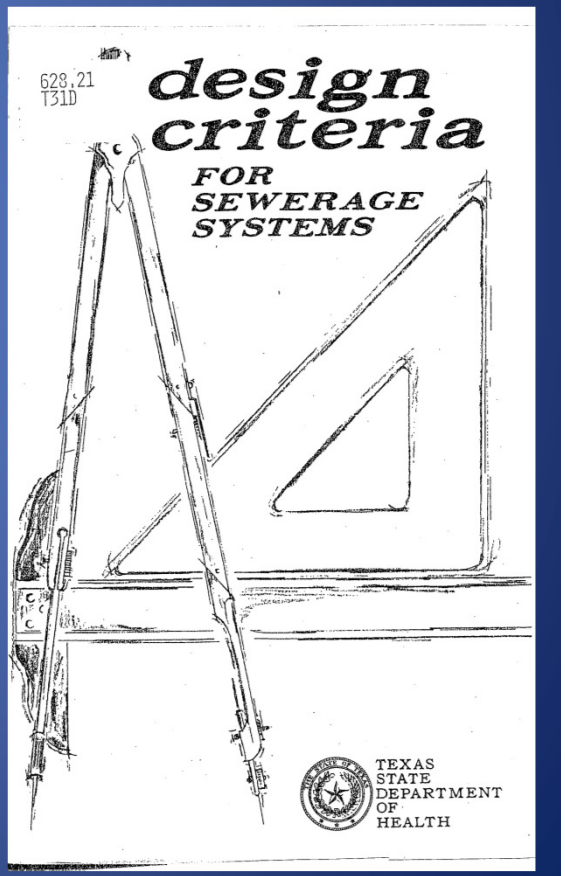
CURRENT CHAPTER 217

- §217.8 Municipality Reviews
- §217.9 Texas Water Development Board Reviews
- §217.16 Treatment Facility O & M Manual

HISTORY OF MAJOR CHANGES OF THE WASTEWATER TREATMENT DESIGN CRITERIA IN TEXAS

The first consolidated design criteria was adopted by Texas State Department of Health on 9/18/1950.

This document was revised on 9/11/1961, 9/18/1968, 9/13/1970, 9/1/1974, 6/1/1981, 4/20/1990, 8/28/2008, 2015?

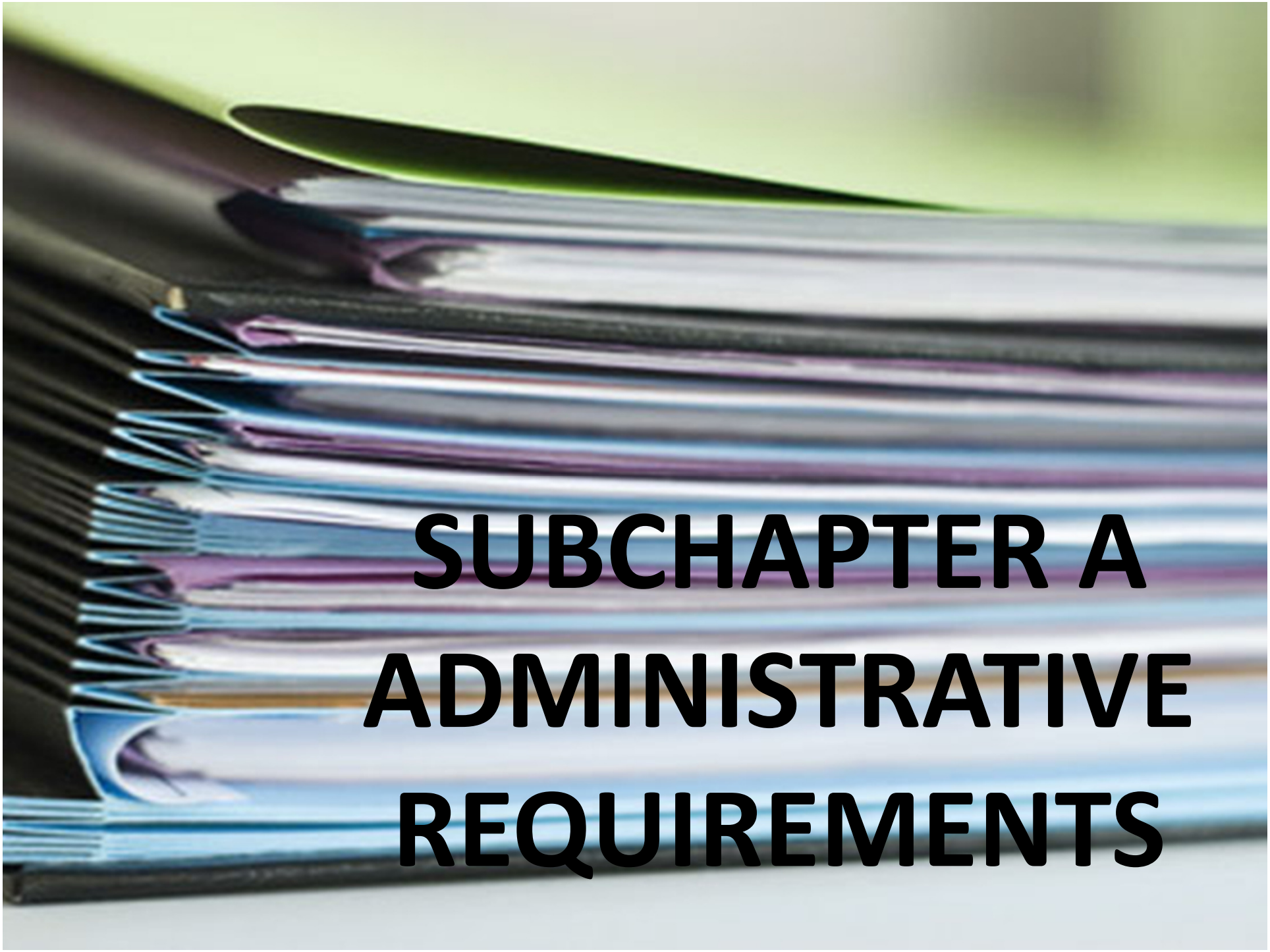


WHAT INITIATED THE RULE UPDATE?

TIMELINE FOR THE PROPOSED RULE

7/14	• Staff finalizes draft rule and request approval to publish on web
8/14	• Draft rule posted on the web
10/14	• Staff reviews stakeholder comments and edits rule
2015	• Staff finalizes rule document and briefs management
2015	• Proposal agenda
2015	• Publish in Texas Register

PROPOSED CHANGES TO THE RULE


SUBCHAPTER A
ADMINISTRATIVE
REQUIREMENTS

REVISED PURPOSE AND APPLICABILITY

- Section 217.1 (Applicability)

- Adding paragraphs to clarify the grandfathering clause
- The existing wastewater treatment system is subject to the design requirements at the time of approval

NEW/REVISED DEFINITIONS

- MAINTENANCE
- REHABILITATE
- SURCHARGE
- GRAVITY RELIEF SEWER
- DESIGN FLOW
- GRINDER PUMP
- EQUALIZATION BASIN
- ALTER

APPLICABILITY EXAMPLES FOR ALTER

- Replace a treatment unit or a collection system unit.
- Modify in a way that changes:
  - capacity;
  - function;
  - process;
  - mode of operation;
  - configuration;
  - a design parameter;
  - a major design assumption

Example:

Replaced a gravity thickener with a belt press and plan to use thickener as a digester instead.

- *This is subject to new criteria under 30 TAC 217.*

APPLICABILITY EXAMPLES REHABILITATION

Repair of a collection system using a lining or coating method.

- Trenchless technologies:
  - Cement mortar lining
  - Epoxy spray lining
  - Cure in place piping
  - Slip lining
- Other trenchless method of installing, replacing, or repairing

- *Rehabilitate a portion of a 50-year old collection system by cleaning, televising and spraying an epoxy lining inside the pipe.*
- *These are subject to review under the proposed 30 TAC 217 criteria.*

APPLICABILITY EXAMPLES
RE-RATE

- Change the design flow or design organic loading of a treatment unit, without altering the unit, based on actual performance data.

- *An existing WWTP has a new permit with stricter effluent limitations. Without increasing the flow capacity the plant is going to demolish its activated sludge process and construct a membrane process in its place.*

- *This is subject to the new criteria under 30 TAC 217.*

APPLICABILITY EXAMPLES MAINTENANCE

- Replacement must not cause alteration.
- Scheduled preventative care, repair, or the equivalent replacement of components or appurtenances of a treatment unit or a collection system unit.
- Maintenance does not include replacement of a treatment unit or a collection system unit.

- *-WWTP replaces the motor on a pump with the same gallons per minute and head rating.*
- *-Replacing the squeegee blades on a mechanical clarifier.*
- *These are **NOT** subject to the new criteria under 30 TAC 217.*

SUBCHAPTER B
TREATMENT FACILITY DESIGN REQUIREMENTS

CHANGES TO TABLE B.1.

Source	Remarks	Daily Wastewater Flow (gallons/person)	Wastewater Strength (mg/l BOD_5)	Wastewater Strength (mg/l NH_3-N)
Municipality	Residential	75-100	200-400	15-75
Subdivision	Residential	75-100	200-400	15-75
Trailer Park (Transient)	2½ Individuals per Trailer	50-60	250-350	15-75
Mobile Home Park	3 Individuals per Trailer	50-75	300	15-75
School	Cafeteria & Showers Cafeteria/No Showers	20 15	300 300	15-75 15-75
Recreational Parks	Overnight User Day User	30 5	200 100	15-75 15-75
Office Building or Factory	A facility must be designed for the largest shift	20	300	15-75
Hotel/Motel	Per Bed	50-75	300	15-75
Restaurant	Per Meal	7-10	1000*	15-75
Restaurant with bar or cocktail lounge	Per Meal	9-12	1000*	15-75
Hospital	Per Bed	200	300	15-75
Nursing Home	Per Bed	75-100	300	15-75
Alternative Collection Systems (Subchapter D)	Per Capita	75	N/A	N/A

***Based on a restaurant with a grease trap**

OTHER CHANGES

- Propose power reliability to be determined using records from past 60 consecutive months instead of past 24.

CLARIFICATIONS

- The differences between the permitted flow from max 30 day average and annual average
- The minimum information needed to rerate a wastewater treatment plant
- Emergency power requirements in 217.36 and 217.63 (Clarity & Consistency)
- Flow measurement weirs for small plants

SUBCHAPTER C
CONVENTIONAL COLLECTION SYSTEMS

PIPE DESIGN

Add new language to explicitly prohibit bending of gravity and force main pipes.

Re-write subsection on separation distances and add a requirement that gaskets operate properly at atmospheric pressure

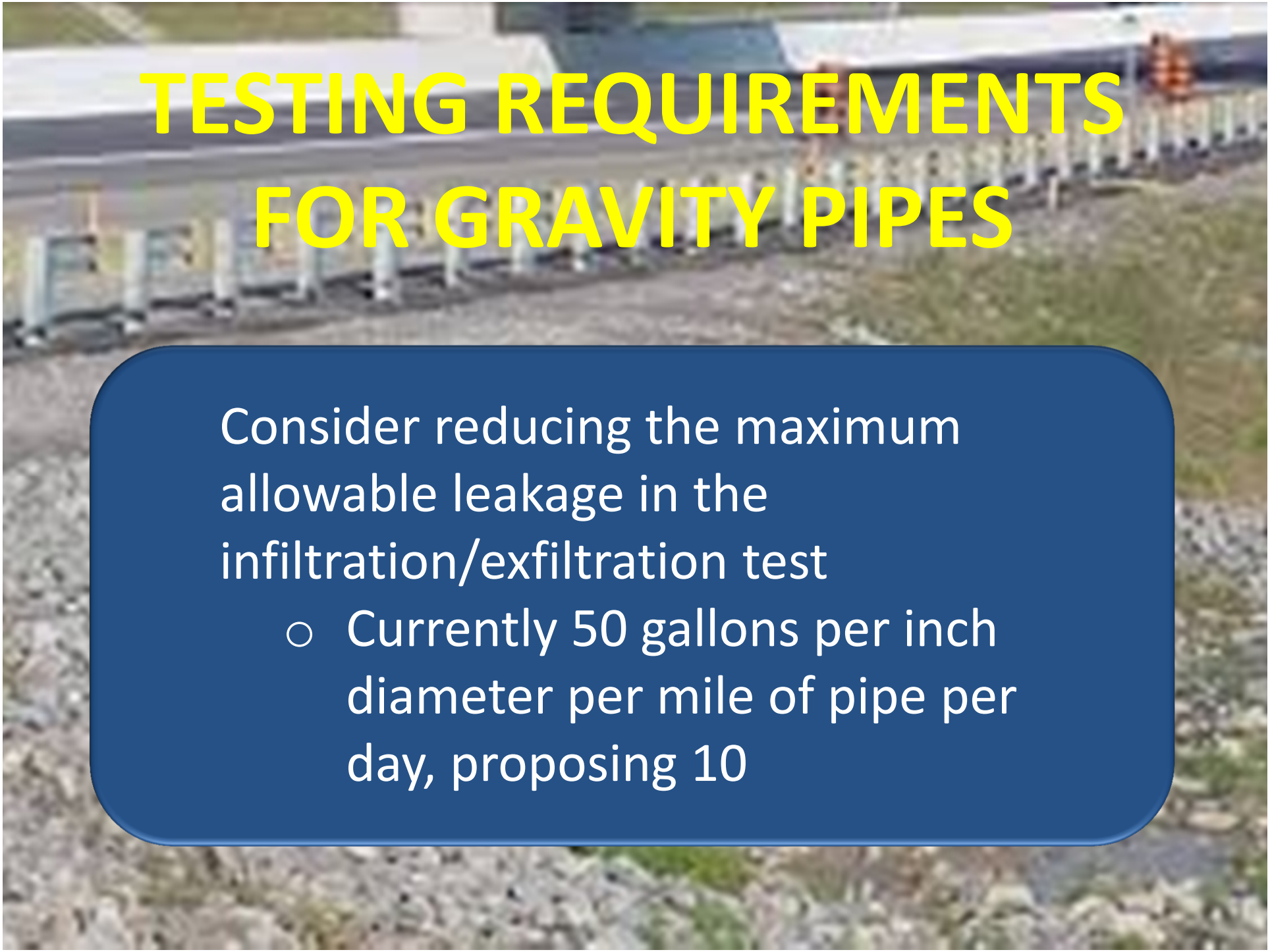
Correct equation 217.53(k)(4) to refer to the structural calculation in equation 217.53(k)(2)

Revised some “Minimum Slopes (%)” in Table C.1

MANHOLES

Clarify locations where bolted and gasketed manholes are required

Add a requirement for engineer to specify an appropriate national reference standard for sealing manhole covers



TESTING REQUIREMENTS FOR GRAVITY PIPES

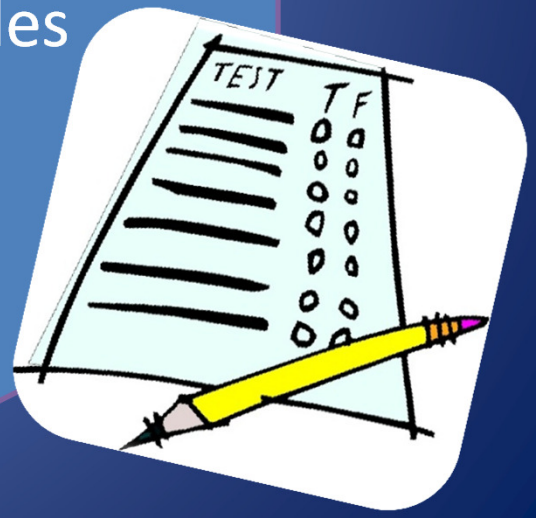
Consider reducing the maximum allowable leakage in the infiltration/exfiltration test

- Currently 50 gallons per inch diameter per mile of pipe per day, proposing 10

TESTING REQUIREMENTS FOR MANHOLES

Correct units in 217.58(b)(2)(d), related to tightening external clamps on the vacuum testing cover

Allow ASTM testing requirements for manholes



LIFT STATIONS

Clarify allowable fence types and set 8 feet as the minimum fence height

Clarify intent for above ground valves

- Concrete pad adjacent to wet well O.K. (fenced)
- Locked/chained in the fence
- Tamper-resistant structure allowable

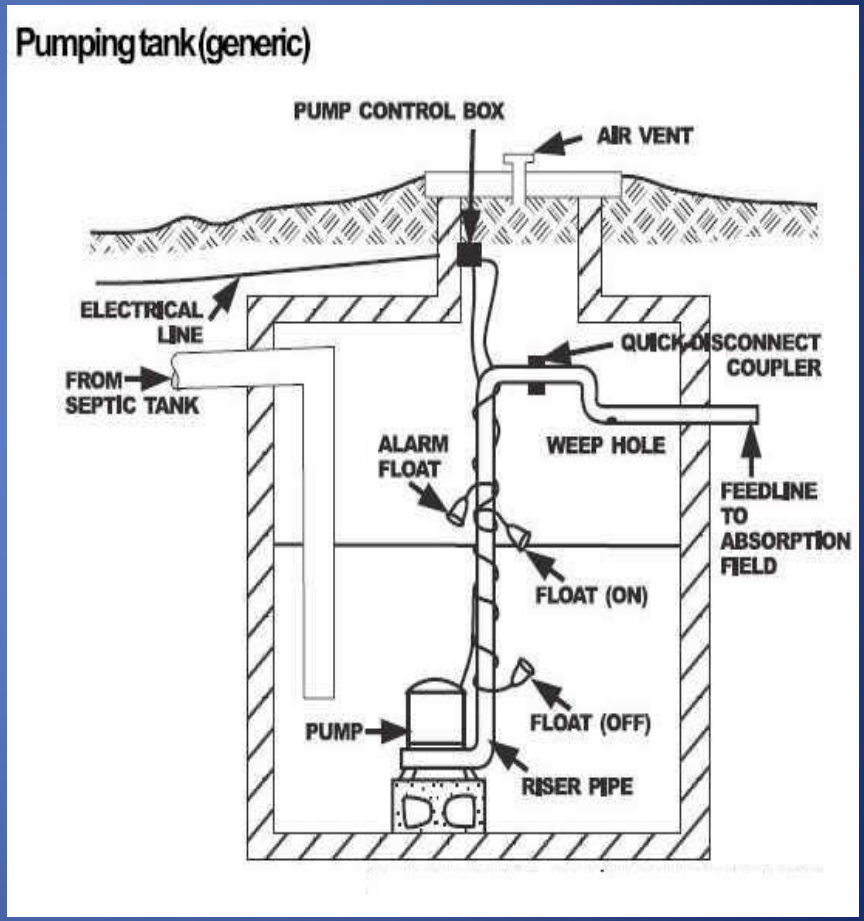
Consider swing-type check valves that do not have external levers

LIFT STATIONS

- Add backup high water float requirement for wet well level detection
- Clarifications
  - Control pad must be large enough for personnel to do electrical work safely
  - Ladders and access hatches must also meet OSHA
  - Non-corrosive vents for all lift stations
  - Explosion-proof equipment for all lift stations

LIFT STATIONS

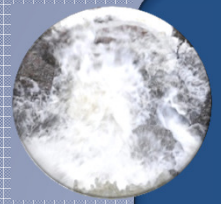
- Other clarifications (cont.)
  - Hoisting equipment and access
  - Separate pipes for sump pumps
  - Expected peak flow and firm pumping capacity



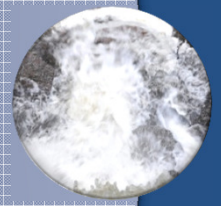
EMERGENCY PROVISIONS FOR LIFT STATIONS

- Clarify that generators or auxiliary pumps may be used
- Add minimum fuel tank size requirements based on hours of fuel
- Use of collection system or spill containment as a sole system for preventing discharge to be prohibited
- Clarify quick connection design and generator electric loading design

FORCE MAINS

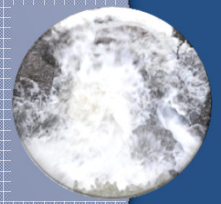


Add fatigue life calculation requirements



Consider basing minimum velocities on the smallest pump operating at full speed

Consider additional flushing requirement for variable speed pumps that normally operate below minimum velocities



Clarify that air release valves must be noncorrosive

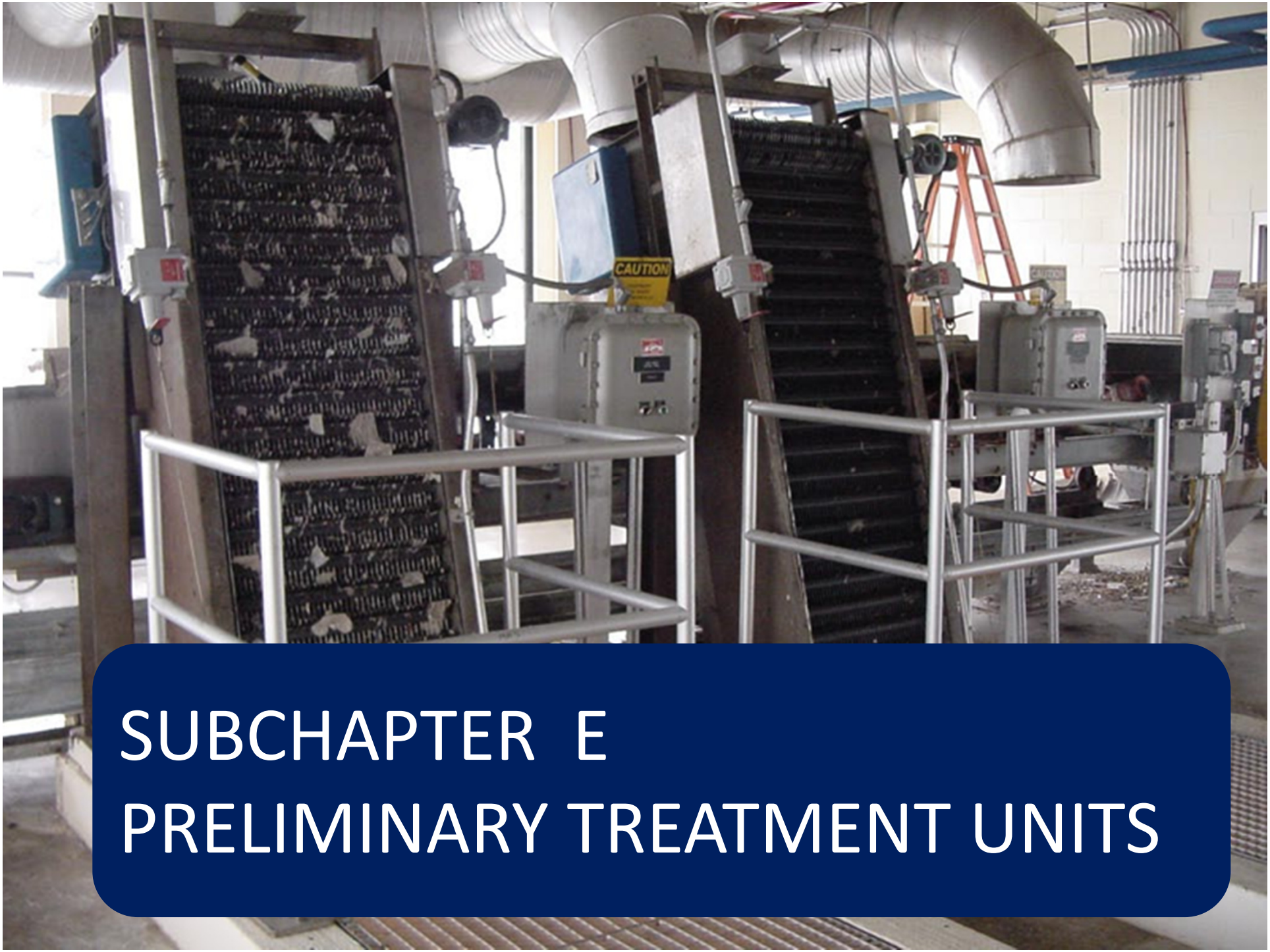
New Section - §217.69

- Maintenance, Inspection and Rehabilitation of the Collection System
  - New requirements for inspecting and maintaining wastewater collection systems and post-installation inspections of collection system rehabilitation projects
    - (related to the petition for rulemaking)

RECLAIMED WATER

Remove requirement that electrical equipment be operable during a 100 year flood event

- Consider requirement that equipment be protected from a 100 year flood event



SUBCHAPTER E
PRELIMINARY TREATMENT UNITS

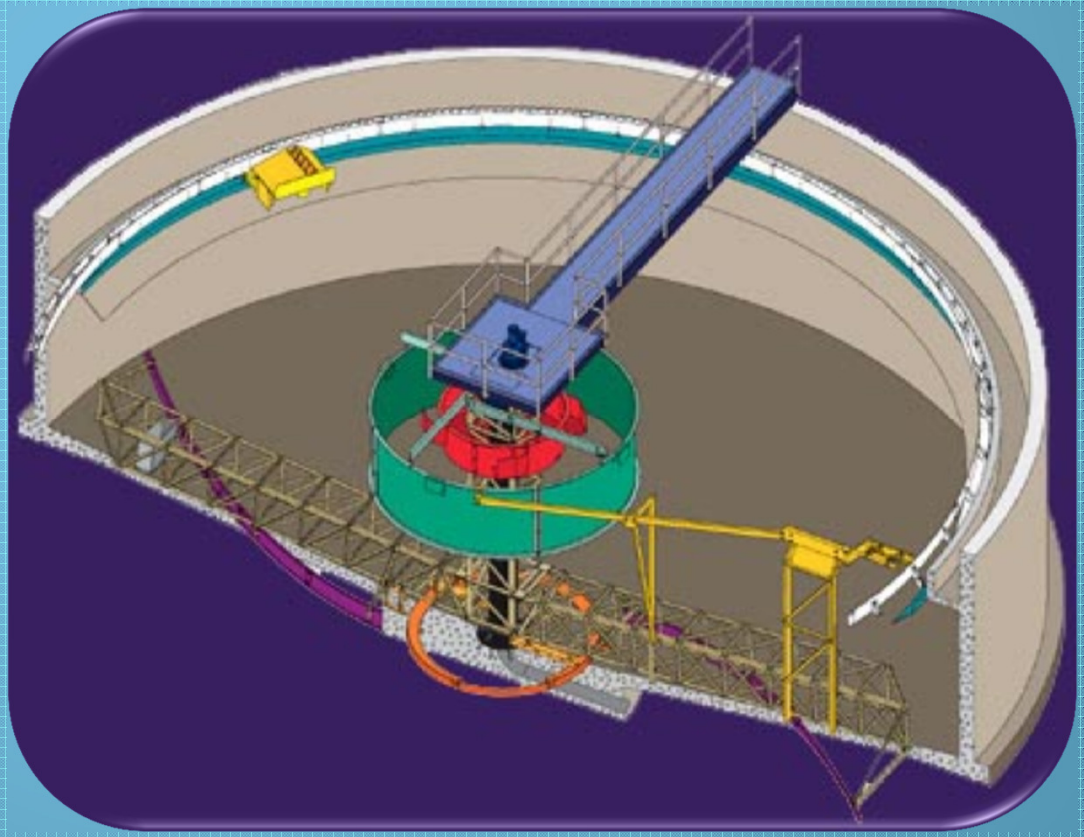
CLARIFICATIONS

- General requirements section added
- Grinding devices vs screening devices
- Correct the spelling on Coarse Screen
- Clarify the requirements on EQ basin

Subchapter F
Activated Sludge Systems

CLARIFIER

- Clarify and update the flow velocity in the sludge pipe.



MEMBRANE BIOREACTOR SYSTEMS

- Clarify and update the nutrient removal requirements

AERATION SIZING EQUIPMENT

Clarify the oxygen requirement for high NH_3-N plant

Add a table showing the max allowed % transfer efficiency at varying depths for fine and coarse bubble

Other Clarifications

SOLIDS MANAGEMENT

- Add a new section for Airlift Pump Design (217.162)

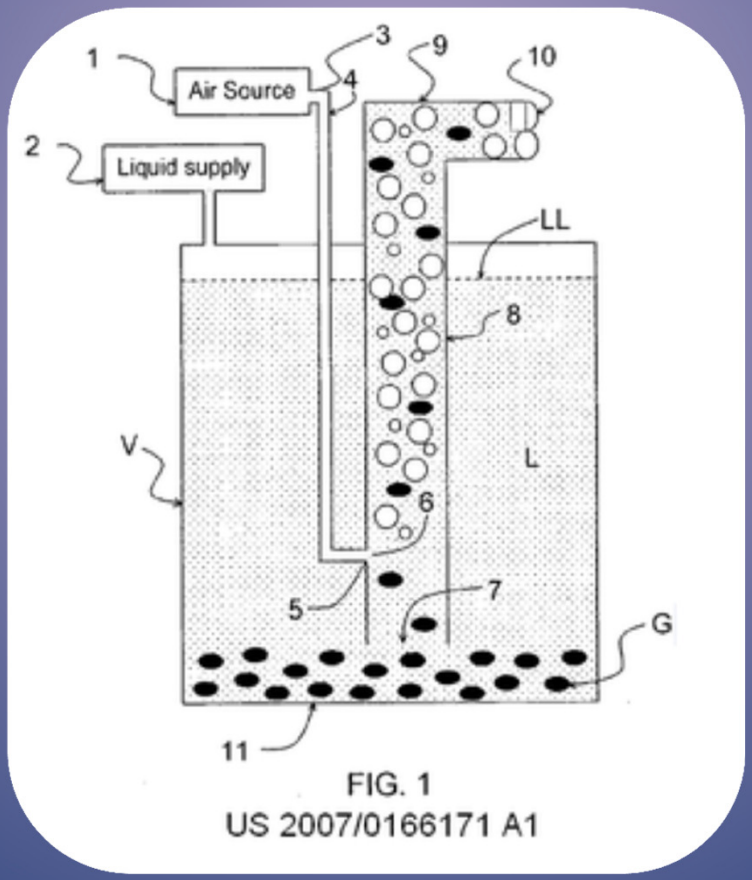
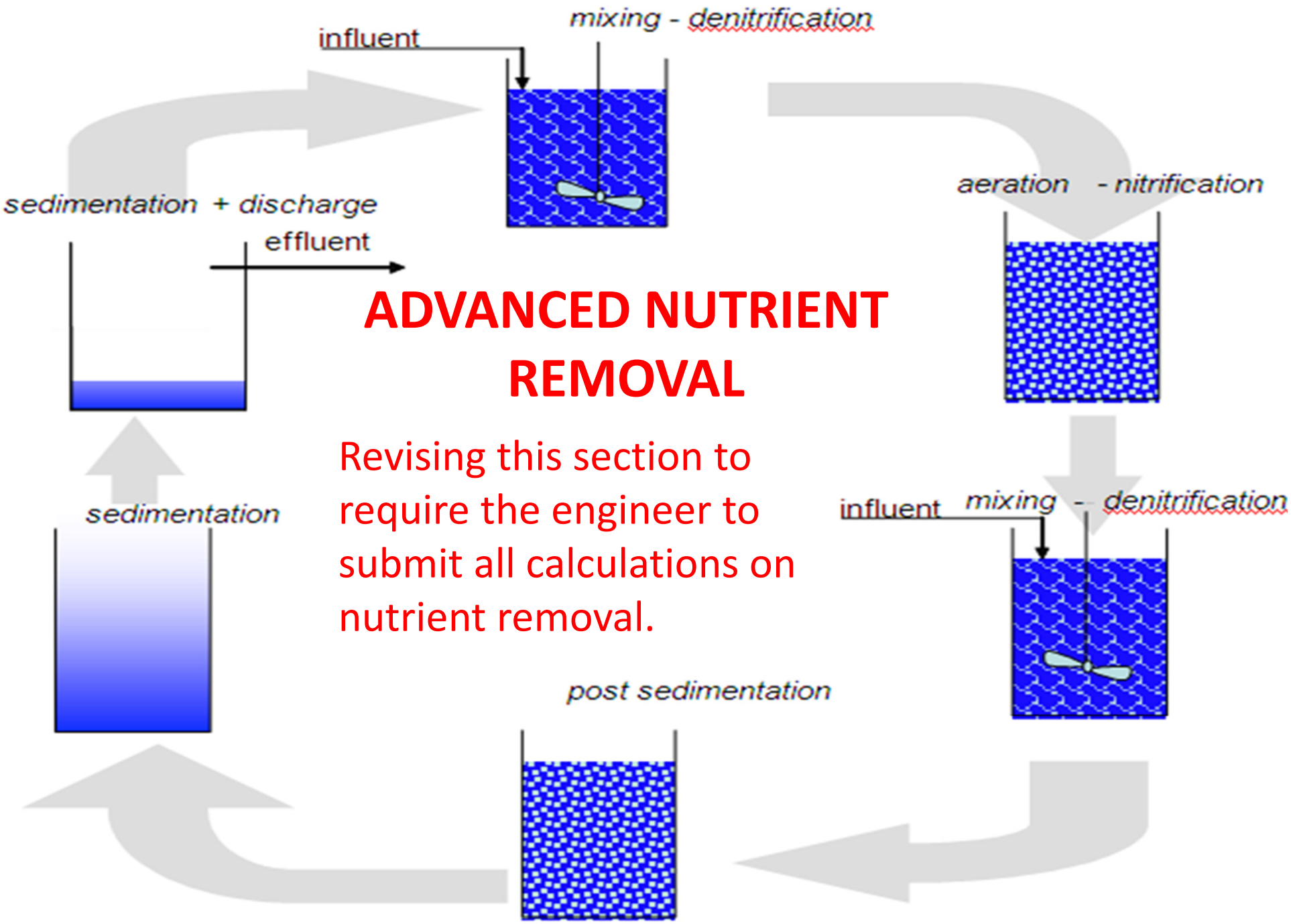


FIG. 1
US 2007/0166171 A1



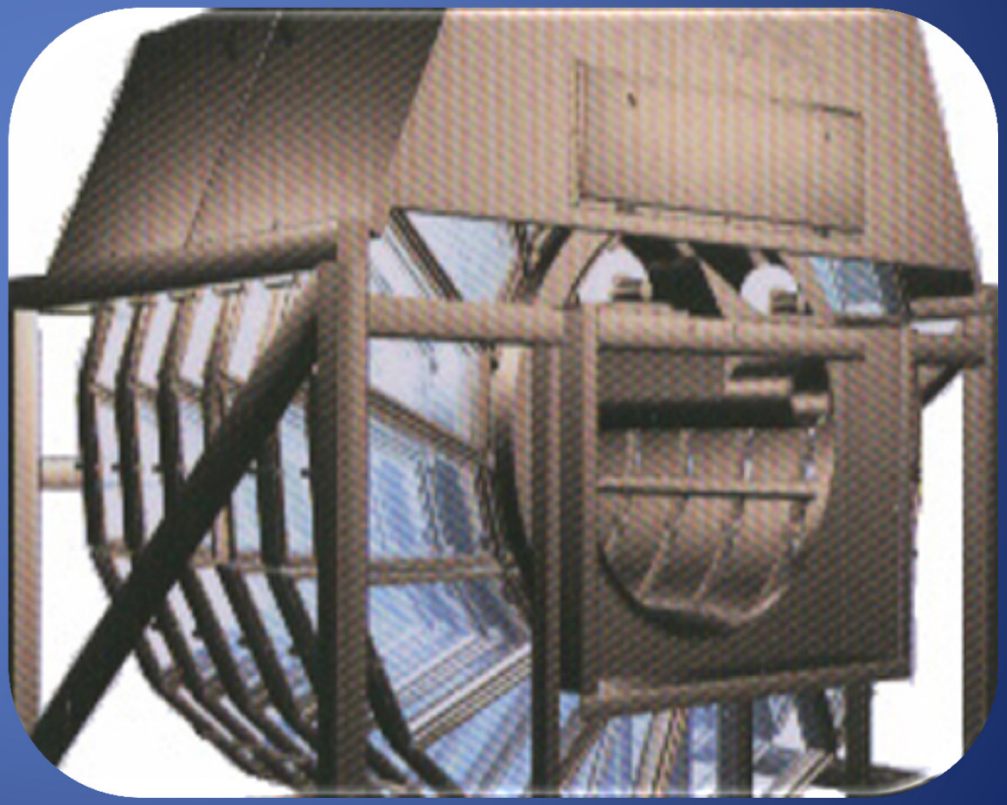
ADVANCED NUTRIENT REMOVAL

Revising this section to require the engineer to submit all calculations on nutrient removal.

SUBCHAPTER G
FIXED FILM AND FILTRATION UNITS

NEW TECHNOLOGY

Add requirements for cloth media filters



SUBCHAPTER H
NATURAL TREATMENT FACILITIES

NATURAL SYSTEMS

- Considerable rewording done to §217.203 Design Criteria for Natural Treatment Facilities
- Corrected aerated pond treatment efficiency equation

SUBCHAPTER J
SLUDGE TREATMENT UNITS


SUBCHAPTER K
CHEMICAL DISINFECTION

CHLORINATION/DECHLORINATION SYSTEMS

- Clarify intent related to tank placement for spill containment
- Allow a minimum length to width ratio as an alternate to modeling for chlorine mixing


SUBCHAPTER M
SAFETY
Safety
First

PIPE COLOR CODING

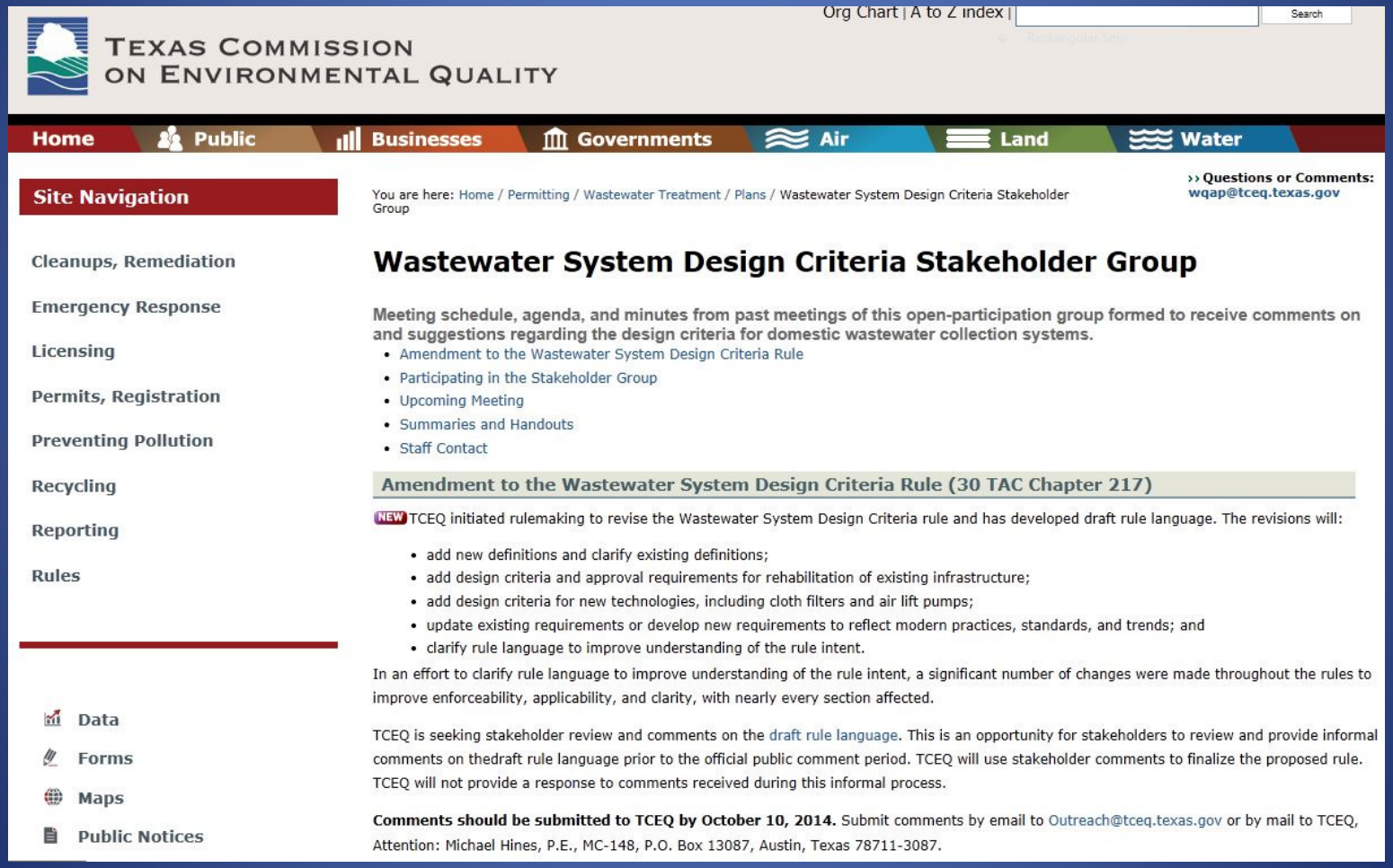
- Updating the pipe color coding to be consistent with the MOP 8 and National Plumbing Codes (no longer being considered)

SAFETY AND SECURITY AUDITS

- Require the owner to conduct annual audits and to prepare and implement a corrective action plan.

DRAFT RULE LANGUAGE

https://www.tceq.texas.gov/permitting/wastewater/plans/design_criteria_stakeholder_group.html



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›› Questions or Comments: wqap@tceq.texas.gov

Wastewater System Design Criteria Stakeholder Group

Meeting schedule, agenda, and minutes from past meetings of this open-participation group formed to receive comments on and suggestions regarding the design criteria for domestic wastewater collection systems.

- Amendment to the Wastewater System Design Criteria Rule
- Participating in the Stakeholder Group
- Upcoming Meeting
- Summaries and Handouts
- Staff Contact

Amendment to the Wastewater System Design Criteria Rule (30 TAC Chapter 217)

NEW TCEQ initiated rulemaking to revise the Wastewater System Design Criteria rule and has developed draft rule language. The revisions will:

- add new definitions and clarify existing definitions;
- add design criteria and approval requirements for rehabilitation of existing infrastructure;
- add design criteria for new technologies, including cloth filters and air lift pumps;
- update existing requirements or develop new requirements to reflect modern practices, standards, and trends; and
- clarify rule language to improve understanding of the rule intent.

In an effort to clarify rule language to improve understanding of the rule intent, a significant number of changes were made throughout the rules to improve enforceability, applicability, and clarity, with nearly every section affected.

TCEQ is seeking stakeholder review and comments on the draft rule language. This is an opportunity for stakeholders to review and provide informal comments on thedraft rule language prior to the official public comment period. TCEQ will use stakeholder comments to finalize the proposed rule. TCEQ will not provide a response to comments received during this informal process.

Comments should be submitted to TCEQ by October 10, 2014. Submit comments by email to Outreach@tceq.texas.gov or by mail to TCEQ, Attention: Michael Hines, P.E., MC-148, P.O. Box 13087, Austin, Texas 78711-3087.

QUESTIONS?